

AMENDMENTS TO THE CLAIMS

The listing of claims below replaces all prior versions of claims in the application.

1. (Currently Amended): A method of ~~making~~ using a liquid crystal display comprising:
a front panel comprising a front alignment layer having an alignment direction;
a rear panel comprising a rear alignment layer having an alignment direction; and
a liquid crystal layer between the front and rear alignment layers;
wherein at least one of the front and rear panels further comprises a polarizer, said polarizer comprising a thin crystal film manufactured from a plurality of aromatic organic compounds, and the interplanar distance of the thin crystal film in the direction of any optical axis is $3.4 \pm 0.3 \text{ \AA}$
wherein the liquid crystal layer has a rotational twist angle of about 90° , a pre-tilt angle of not more than 2° ; and
the method comprising the step of setting the direction of liquid crystal directors coinciding with an off-normal viewing direction of the liquid crystal display at the mid-point of the rotational twist when a voltage is applied to the liquid crystal layer by selecting the alignment, material and thickness of the liquid crystal layer whereby a maximum image contrast is achieved in the off-normal viewing direction,
wherein the direction of the liquid crystal directors coincides with an off-normal viewing direction in the range of an azimuth angle of from 15 to 35 degrees in the voltage-on state and the contrast becomes the largest in such a direction.

2. (Previously Presented): The method of claim 1 wherein the front panel further comprises a front polarizer, and the rear panel further comprises a rear polarizer.

3. (Previously Presented): The method of claim 2 wherein the transmission axes of the front and rear polarizers are perpendicular.

4. (Previously Presented): The method of claim 2 wherein the transmission axes of the front and rear polarizers are parallel.

5. (Previously Presented): The method of claim 2 wherein at least one of front and rear polarizers is E-type polarizer, and the transmission axis of the E-type polarizer and the alignment direction of the alignment layer in the same panel as the E-type polarizer are perpendicular.

6. (Cancelled).

7. (Previously Presented): The method of claim 23 wherein at least one of the aromatic organic compounds contains heterocycles.

8. (Previously Presented): The method of claim 23 wherein the thin crystal film is formed from a lyotropic liquid crystal based on at least one dichroic dye.

9. (Previously Presented): The method of claim 8 wherein the thin crystal film is treated with ions of bi-or/and trivalent metals.

10. (Previously Presented): The method of claim 2 wherein the front and rear polarizers are O-type polarizers.

11. (Previously Presented): The method of claim 10 wherein the transmission axis of the front O-type polarizer is parallel to the alignment direction of the front alignment layer, and the transmission axis of the rear O-type polarizer is parallel to the alignment direction of the rear alignment layer.

12. (Previously Presented): The method of claim 2 wherein the transmission axis of the front polarizer and the alignment direction of the front alignment layer form an angle from 0° to 90°.

13. (Previously Presented): The method of claim 2 wherein the transmission axis of the rear polarizer and the alignment direction of the rear alignment layer form an angle from 0° to 90°.

14. (Previously presented): The method of claim 2 wherein at least one of the front and rear polarizers is an internal polarizer.

15. (Previously Presented): The method of claim 14 wherein the internal polarizer has at least one of the functions selected from the group consisting of an alignment layer, color correction filter, retarder, and any combination thereof.

16. (Previously Presented): The method of claim 1 further comprises a reflective layer.

17. (Previously Presented): The method of claim 16 wherein the reflective layer is semitransparent.

18. (Previously Presented): The method of claim 17 further comprises a backlighting system.

19. (Previously Presented): The method of claim 1 further comprises an antireflection or antiglare layer.

20. (Previously Presented): The method of claim 1 further comprises a light-scattering layer.

21. (Previously Presented): The method of claim 1 further comprises a retarder layer, a protective layer, an adhesive layer, a color filter, or a layer combining functions of at least two of the said layers.

22. (Previously Presented): The method of claim 1 wherein the off-normal viewing direction is in the range of 15° to 35° in azimuth angle, and in this range, the maximum contrast ratio is not lower than 40.

23. (Previously Presented): The method of claim 5 wherein the E-type polarizer is a thin crystal film manufactured from aromatic organic compounds, and the interplanar distance of the thin crystal film in the direction of any optical axis is $3.4 \pm 0.3 \text{ \AA}$.